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United States Government **Department of Energy**

memorandum

DATE: April 14, 2005

REPLY TO ATTN OF: Office of Air, Water and Radiation Protection Policy and Guidance (EH-41):Boulos:6-1306

SUBJECT: Analysis of the Final Clean Air Act Rule on Leak Repair Requirements for Appliances Using Substitute Refrigerants

TO: Distribution

On January 11, 2005, the Environmental Protection Agency (EPA) issued a final rule, "Protection of Stratospheric Ozone: Leak Repair Requirements for Appliances Using Substitute Refrigerants" (70 FR 1972). The final rule is amending 40 CFR Part 82 Subpart F which covers recycling and emissions reduction during the maintenance and disposal of equipment and appliances containing ozone-depleting refrigerants. The purpose of this memorandum is to provide Department of Energy (DOE) program and field offices with an analysis of the final rule, since it has the potential to affect refrigeration and chiller units at DOE sites. The final rule is available at the DOE Environmental Policy and Guidance Web site at: http://www.eh.doe.gov/oepa/rules/70/70fr1972.pdf.

Questions on the final rule can be directed to Mr. Emile Boulos of my staff at: emile.boulos@eh.doe.gov; 202-586-1306.

Andrew Wallo
Director
Office of Air, Water and Radiation
Protection Policy and Guidance

Attachment

ATTACHMENT

Analysis of the Clean Air Act Final Rule on Leak Repair Requirements for Appliances Using Substitute Refrigerants (70 FR 1972; January 11, 2005)

Overview

On January 11, 2005, the Environmental Protection Agency (EPA) issued a final rule, "Protection of Stratospheric Ozone: Leak Repair Requirements for Appliances Using Substitute Refrigerants." The final rule is amending 40 CFR Part 82 Subpart F which covers refrigerant recycling and emissions reduction during the maintenance and disposal of equipment and appliances containing ozone-depleting substances (ODS). Certain aspects of the rule affect Federal owners of cooling appliances containing more than 50 pounds of refrigerant. It is effective March 14, 2005.

The final rule is available at the DOE Environmental Policy and Guidance Web site at: http://www.eh.doe.gov/oepa/rules/70/70fr1972.pdf. Additional information on EPA regulations and guidance related to Section 608 of the Clean Air Act[1], (National Recycling and Emission Reduction Program) including leak repair and recordkeeping requirements, is available at the EPA Web site: http://www.epa.gov/ozone/title6/608/index.html . Office of Air, Water and Radiation Protection Policy and Guidance (EH-41) guidance and analyses of other EPA Section 608 regulations are available at http://homer.ornl.gov/oepa/guidance/getbysubject.cfm?ODS=1&ID=23.

These amendments to 40 CFR 82 Subpart F make the following changes:

- the leak repair requirements (40 CFR 82.156) are revised;
- the reporting and recordkeeping requirements (40 CFR 82.166) are revised;
- the definition for the term "full charge" (40 CFR 82.152) is amended; and
- a new definition for the term "leak rate" (40 CFR 82.152) is added.

Leak Repair Requirements (40 CFR 82.156)

[1]Section 608 of the Clean Air Act requires EPA to establish a comprehensive program to limit emissions of ozone-depleting refrigerants. Section 608 also prohibits the knowingly venting or otherwise knowingly release or disposal of ozone-depleting refrigerants and their substitutes during the maintenance, service, repair, or disposal of air-conditioning and refrigeration appliances. Section 608 is divided into three subsections. In brief, the first, Section 608(a), requires EPA to promulgate regulations to reduce the use and emission of class I substances (i.e., chlorofluorocarbons (CFCs), halons, carbon tetrachloride, and methyl chloroform) and class II substances (hydrochlorofluorocarbons [HCFCs]) to the lowest achievable level, and to maximize the recycling of such substances. Second, Section 608(b) requires that the regulations promulgated pursuant to subsection (a) contain requirements for the safe disposal of class I and class II substances. Finally, Section 608(c) establishes self-effectuating prohibitions on the knowingly venting, release or disposal into the environment of any class I or class II substances, and eventually their substitutes, during servicing and disposal of air-conditioning or refrigeration appliances. Section 608(a) provides EPA authority to promulgate the requirements of 70 FR 1972.

Several of the required practices in 40 CFR 82.156 are amended in a manner that will affect Federally-owned refrigeration equipment and comfort cooling appliances. Under existing 40 CFR 82.156 provisions, owner/operators of commercial/industrial refrigeration equipment normally containing more than 50 pounds of refrigerant[2] must have leaks repaired to bring the annual leak rate to below 35 percent [40 CFR 82.156(i)(1,2)]. For other appliances, the applicable annual percentage is 15 percent [40 CFR 82.156(i)(5)]. The preamble to this final rule contains five compliance scenarios to assist owner/operators in determining what actions are appropriate when equipment or appliances are leaking above the applicable annual leak rate (70 FR 1983 – 1985). Certain time exceptions for leak repair are available for Federally-owned commercial refrigerant and comfort cooling appliances including appliances located in areas subject to radiological contamination [40 CFR 82.156(i)(1,5)].

The January 11, 2005 final rule provides that:

- owner/operators of Federally-owned commercial refrigeration equipment or cooling appliances who are granted additional time to repair leaks must have repairs performed in a manner that sound professional judgment indicates will bring the leak rate below the applicable allowable leak rate. The owner/operator must also conduct an initial and follow-up verification test [40 CFR 82.156(i)(3)].

- If the owner/operator of Federally-owned commercial refrigeration equipment or comfort cooling appliances is granted additional time for leak repair and takes the equipment or appliance offline, the equipment or appliance cannot be brought back online until a test is conducted to verify that the repairs have been successfully completed [40 CFR 82.156(i)(3)(i)].

- If the verification test indicates that repairs have not been successful, the owner/operator must retrofit or retire the equipment or appliance according to 40 CFR 82.156(i)(6-8) unless the conditions in 40 CFR 82.156(i)(3)(iv,v) are met [40 CFR 82.156(i)(3)(ii)].

- Owner/operators are not required to repair leaks if they develop a one-year retrofit or retirement plan for the leaking appliance within 30 days of discovering a leak greater than the applicable allowable leak rate or within 30 days of a failed follow-up verification test [40 CFR 82.156(i)(6)].

- Owner/operators who retire and replace the appliance must use an appliance with a lower or equivalent ozone-depleting potential and must include such a change in

[2] "Refrigerant" means, for purposes of this Subpart, any substance consisting in part or whole of a class I or class II ozone-depleting substance that is used for heat transfer purposes and provides a cooling effect, or any substance used as a substitute for such a class I or class II substance by any user in a given end-use. "Substitute" means any chemical or product, whether existing or new, that is used by any person as an EPA approved replacement for a class I or II ozone-depleting substance in a given refrigeration or air-conditioning end-use. (69 FR 11946; March 12, 2004).

the retirement plan. The retrofit or retirement must be completed within one year and 30 days of when the owner/operator discovered that the leak rate exceeded the applicable allowable rate [40 CFR 82.156(i)(6)(i)] unless additional time is authorized by 40 CFR 82.156(i)((7,8).

Reporting and Recordkeeping Requirements, 40 CFR 82.166

40 CFR 82.166 includes changes to reporting and recordkeeping requirements related to the service, maintenance, repair, and disposal of appliances and equipment containing ODS. One of the requirements is that owners of appliances that contain 50 or more pounds of refrigerant must keep servicing records documenting the date and type of service as well as the quantity of refrigerant added [40 CFR 82.166(k)]. The final rule made minor changes to the reporting and recordkeeping requirements in 40 CFR 82.166(n) and (q):

- EPA clarified 40 CFR 82.166 (n), (n)(1), (n)(2), and (n)(3) by stating that these reporting requirements are only required when specified under 40 CFR 82.156. EPA restated the required contents of retrofit or retirement plans throughout Section 82.166(n).

- EPA clarified 40 CFR 82.166(q) by stating that owner/operators who choose to determine the full charge, as defined at 40 CFR 82.152, of an appliance by using an established range or using that methodology in combination with other methods for determining the full charge must maintain the specified information identifying the appliance and the methodology used to determine the full charge.

Revised Definition of "Full Charge," 40 CFR 82.152

EPA clarified the definition of "full charge" It means the amount of refrigerant required for normal operating characteristics and conditions of the appliance as determined using one or a combination of four methods set out in the definition.

New Definition of "Leak Rate," 40 CFR 82.152

Under the new definition of "leak rate," it means, "the rate at which an appliance is losing refrigerant, measured between refrigerant charges. The leak rate is expressed in terms of the percentage of the appliance's full charge that would be lost over a 12-month period if the current rate of loss were to continue over that period. The rate is calculated using only one of the listed methods for all appliances located at an operating facility." EPA allows appliance owner/operators to use either of two methods set out in the definition to calculate leak rate, provided the option chosen is used consistently for calculating leak rates for the lifetime of all appliances located at an operating facility that is subject to the leak repair requirements at 40 CFR 82.156. EPA is also requiring the owner/operator to promptly calculate the leak rate each time an owner/operator adds refrigerant to a system normally containing more than 50 pounds of refrigerant.